# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/666,515 | 09/18/2003 | Mikhail A. Dmitriev | SUN-P9376-SPL | 9178 |

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| EXAMINER |
|---|
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| ART UNIT | PAPER NUMBER |
|---|---|
| 2191 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|---|---|---|
| 3 MONTHS | 01/03/2007 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

| | Application No. | Applicant(s) |
|---|---|---|
| **Office Action Summary** | 10/666,515 | DMITRIEV, MIKHAIL A. |
| | Examiner | Art Unit | |
| | Philip Wang | 2191 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on <u>16 October 2006</u>.
2a) ☒ This action is **FINAL**.     2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) *1-16* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) *1-16* is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some * c) ☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

1.      This office action is in response to amendment filed on 10/16/2006.

2.      The 35 USC § 101 rejection of claims 9-24 are withdrawn in view of the Applicant's

amendment to claims 9-16 and cancellation of claims 17-24.

3.      Per Applicant's request, claims 1 and 9  have been amended.

4.      Per Applicant's request, claims 17-24 are canceled.

5.      Claims 1-16 remain pending.


### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner
> and process of making and using it, in such full, clear, concise, and exact terms as to
> enable any person skilled in the art to which it pertains, or with which it is most nearly
> connected, to make and use the same and shall set forth the best mode contemplated
> · by the inventor of carrying out his invention.

6.      Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with

the written description requirement.  The claim(s) contains subject matter which was not

described in the specification in such a way as to reasonably convey to one skilled in the

relevant art that the inventor(s), at the time the application was filed, had possession of the

claimed invention.


Independent claims 1 and 9 recite the limitation of "allowing a user to select at runtime the

instrumented portions of the code to execute;" The Applicant has indicated support for this

limitation is in paragraphs [0116]-[0118] and Fig. 6 of the specification.  Upon review of the

above mentioned portion of the specification, for example, [0116], line 3-6, "Method 604 is

selected by a user, and becomes a "root method" for profiling purposes...root method are

instrumented as they are loaded..." It appears that the selected portion of the code is not

instrumented when the selection is made. However, the language of the instant claim appears

to indicate selecting instrumented portions of the code ("select...the instrumented portions of the

code"). Claims 2-8 depend on claim 9 and claims 10-16 depend on claim 9 and suffer the

same deficiency.


### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a
> whole would have been obvious at the time the invention was made to a person having
> ordinary skill in the art to which said subject matter pertains. Patentability shall not be
> negatived by the manner in which the invention was made.

1.      Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al.

(USPGPub. NO. 2002/0049963) in view of Almy et al. (US Patent No. 6,609,216).


As per claim 1,

Beck et al.

- receiving a code to be profiled; inserting profiling instrumentation code in the

code; executing the code including the instrumented portions of the code

([0087]: 8-9, `"...can effect any desired instrumentation`

`function, recording date and time..."`; line 17, `"..measure the`

`time required for... the ..method")`; allowing a user to select at runtime

the instrumented portions of the code to execute `([0029],"...selectively`

`monitors the behavior of objects residing inside the`

executing software."; [0032], "The instrumenting software

170 can perform software instrumentation by modifying the

in-memory representation of one or more portions of the

software...via pre-programmed or user entered commands...");

Beck et al. does not specifically disclose

- measuring a time for executing instrumented portions of the code; and

subtracting an overhead time for the profiling instrumentation code from the

measured time to obtain the time for the instrumented portions of the code.

However, Almy et al. disclose

- measuring a time for executing instrumented portions of the code; and

subtracting an overhead time for the profiling instrumentation code from the

measured time to obtain the time for the instrumented portions of the code (c2:

23- 49, discloses how to get the time measurement of one or

more instructions by subtracting an overhead time from the

overall measurement time. Specifically, col. 2, line 38-

41, "The difference between the first sequence time and the

second sequence time...as the number of cycles used to

execute that instruction.").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the

invention was made to incorporate the teachings of Almy et al. into the teachings of Beck et al.

to include measuring a time for executing instrumented portions of the code; and subtracting an

overhead time for the profiling instrumentation code from the measured time to obtain the time

for the instrumented portions of the code. The modification would be obvious to one of ordinary

skill in the art to want to measure the performance of individual code as suggested by Almy et

al. (c1: 61-63).


As per claim 2,

the rejection of claim 1 is incorporated;

Beck et al. disclose

- the code includes platform- independent Java bytecodes ([0097], "The

  modification of instructions including bytecode...").


As per claim 3,

the rejection of claim 1 is incorporated;

Almy et al. disclose

- the overhead time is determined by executing the profiling instrumentation code

  without executing any instrumented cod (c2: 23-49, when n = 0).


As per claim 4,

the rejection of claim 3 is incorporated;

Almy et al. disclose

- the profiling instrumentation code is executed multiple times to determine an

  average value for the overhead time (c3: 53-54, "...repeated a number

  of times...").


As per claim 5,

the rejection of claim 4 is incorporated;

Beck et al.

- wherein the profiling instrumentation code includes method entry code that takes

  a first time measurement at the beginning of a method, and method exit code

  that takes a second time measurement at the end of the method, wherein the first

  and second time measurements are used to calculate an execution time for the

  method ([0087], "...any desired instrumentation...e.g.,

  recording of date and time of its invocation....before and/or

  after explicitly invoking ...").

As per claim 6,

the rejection of claim 5 is incorporated;

Almy et al. disclose

- determining the overhead time involves calculating an inner time $t_i = x_2 + y_1$,

  wherein $y_1$ is the time between when the first time measurement is taken and

  when the method entry code is finished executing, and wherein $x_2$ is the time

  between when the method exit code begins executing and when the second time

  measurement is taken (c2: 23-49).

As per claim 7,

the rejection of claim 6 is incorporated;

Almy et al. disclose

- wherein the time $t_{exact}$ for executing instrumented portions of the code is calculated as $t_{exact} = t_{meas} - t_l$ (c2: 23-49).

As per claim 8,

the rejection of claim 7 is incorporated;

- wherein if the method makes m calls to other methods, the time for executing instrumented portions of the code $t_{exact} = t_{meas} - t_l - mt_o$, wherein the outer time, $t_o = x_1 + y_2$, wherein $x_1$ is the time between when the method entry code begins executing and when the first time measurement is taken, and wherein $y_2$ is the time between when the second time measurement is taken and when the method exit code is finished executing (c2: 23-49).

As per claims 9-16, they are the computer-readable medium claims corresponding to method claims 1-8 respectively and are rejected for the same reason set forth in connection of the rejection of claim 1-8 above.

## Response to Arguments

In the remark,

***Applicant argues:***

1) There is nothing within Beck or Almy, either explicit or implicit, which suggests providing the user the ability to select the instrumented code during runtime.

***Examiner's response:***

1) The Applicant has indicated support for this limitation is in paragraphs [0116]-[0118] and Fig. 6 of the specification. Upon review of the above mentioned portion of the specification, for example, [0116], line 3-6, "Method 604 is selected by a user, and becomes a "root method" for profiling purposes...root method are instrumented as they are loaded..." It appears that the selected portion of the code is not instrumented when the selection is made. However, the language of the instant claim appears to indicate selecting instrumented portions of the code ("select...the instrumented portions of the code"). Claims 2-8 depend on claim 9 and claims 10-15 depend on claim 9 and suffer the same deficiency.

Further, referring to Beck, [0029],"...create an instrumented in-memory representation 140 of the object-oriented, virtual-machine-executable...selectively monitors the behavior of objects residing inside the executing software."; [0032], "The instrumenting software 170 can perform software instrumentation by modifying the in-memory representation of one or more portions of the software...via pre-programmed or user entered commands..."

The Applicant also indicates "...the combined system of Beck and Almy teaches preloading the instrumentation code into a class before the software is executed by the virtual machine (see Beck, paragraph [0036])"

The examiner believes the claim language of claims 1 and 9 does not specifically point out the timing of instrumentation of the code. The claim body recites, "receiving a code to be profiled; inserting profiling instrumentation code in the code; ..." All it says is receiving a code and inserting profiling instrumentation code in the code. There is no claim limitation related to what the Applicant argues.

Further, Beck, paragraph [0036], says "...the instrumentation is added to the in-memory representation of portions of software..." Since it is memory, it is a clear indication that the software is in its runtime.

For all the reasons above, the examiner maintain the rejections.

### *Conclusion*

**THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
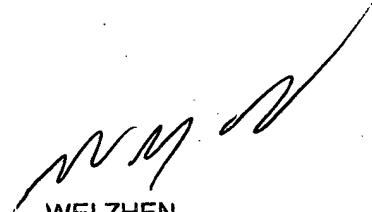
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Wang whose telephone number is 571-272-5934. The examiner can normally be reached on Mon - Fri 8:00 - 4:00PM. Any inquiry of general nature or relating to the status of this application should be directed to the TC2100 Group receptionist: 571-272-2100.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Wei Zhen can be reached on 571-272-3708. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private

PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WEI ZHEN
SUPERVISORY PATENT EXAMINER